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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/570,349

03/03/2006

Kouichi Takei

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EXAMINER

THOMAS, BRENT C

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

04/28/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/570,349	Applicant(s) TAKEI ET AL.	
	Examiner BRENT THOMAS	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4,6,7 and 10-14 is/are pending in the application.
- 4a) Of the above claim(s) 2,10 and 11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 4, 6, 7, and 12-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>4/14/10</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/14/10 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 1, 3, 4, 6, 7, and 12-14 have been considered but are moot in view of the new ground(s) of rejection.

3. Applicant's arguments with respect to unexpected results have been fully considered but they are not persuasive. Tables 2 and 5 only have one data point outside of the claimed range and appear to show that the bulk density variation scales with the superficial carbon rate. If this is due to peeling it would be expected that this would increase as the amount of superficial carbon is increased. The table does not show any evidence of a dramatic increase in peeling outside of the claimed range that would qualify as an unexpected result.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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7. Claims 1, 3, 4, 6, 7, and 12-14 rejected under 35 U.S.C. 103(a) as being unpatentable over Takei et al. (JP 2000-203818 hereafter Takei) in view of Kitagawa et al. (EP 0917228 A1 hereafter Kitagawa).

4. The claim rejections under 35 USC § 103(a) as being unpatentable over Takei et al. (J.P. 2000-203818) in view of Ishii et al. (U.S. Pub. No. 2001/0033822) on claims 1-4, 6, 7, 10, 11, 14 are maintained.

Regarding claims 1 and 12-14, Takei teaches a negative pole material for a lithium secondary battery (title and paragraph [0002]), which is the equivalent of applicants' non-aqueous electrolyte secondary battery negative electrode material. Takei teaches a flat shaped, non-spherical, non-parallel shape of particles (see paragraph [0021] and claim 5), which is the equivalent of applicants' graphite particles that have a block like structure where a plurality of flat graphite fine particles assemble or bonds non-parallel with each other. Takei teaches particles have fine pores of 0.4-2.0 cc/g in the range of 0.1-100 μ m (see paragraph [0012] and claim 5), which is the equivalent of applicants' volume of fine pores in the range of 10 to 10⁵ nm in a volume of 40 to 2000 cm³/kg. Takei teaches a compound carbon particle which has the structure which a graphite grain is covered with amorphous carbon (see paragraph [0011]), which is the equivalent of applicants' layer of carbon formed on a surface of the graphite particle.

Takei teaches a mean particle diameter of 28 μ m (see paragraph [0044]), which is the equivalent of applicants' average particle diameter is 10 μ m or more and 50 μ m or less. Takei teaches the specific surface area of the compound carbon particle obtained

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is $2.5 \text{ m}^2/\text{g}$ and the value is measured in accordance with the BET adsorption method (see paragraph [0044]), which is the equivalent of applicants' specific surface area measured by a BET method is $2.0 \text{ m}^2/\text{g}$ or more and $5.0 \text{ m}^2/\text{g}$ or less.

Takei fails to explicitly teach the aspect ratio is 5 or less, that the ratio (by weight ratio) of the layer of carbon to the graphite particle is in the range of 0.001 to 0.01, or the R value of the graphite.

However, in the same field of endeavor, Kitagawa teaches a particle with a graphite nucleus surrounded by a surface layer of carbon with a weight percent of the carbon layer is between 0.1 wt % and 50 wt % [0019]. This would be equivalent to a ratio range of .001 to 1 which would encompass the claimed range. This particle would also be covered by a layer that consists essentially of carbon (claims 12-14). Kitagawa also teaches that the particle size is between 10 and 30 microns and that the thinnest portion of the particle is at least 3 microns or more [0012]. This would give an aspect ratio range of between 3.33 or less to 10 or less depending on the particle size. This would read upon the claimed range. Kitagawa also teaches similar properties of the graphite particle which read on the claimed ranges such as an average particle size of 10 to 30 microns, a specific surface area between $3.5 \text{ m}^2/\text{g}$ and $10 \text{ m}^2/\text{g}$, and an R value (measured from the peak intensity ratio of 1360 cm^{-1} in relation to the peak intensity of 1580 cm^{-1}) of 0.3 or less [0012].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the coated graphite powder of Kitagawa with the battery of

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Takei for the benefit of the high specific capacity and low irreversible capacity it provides [Kitagawa 0059].

Takei or Kitagawa fail to explicitly teach the true specific gravity is 2.22 or more or that the bulk density is 780kg/m^3

However, these properties are inherent. It is known that if a material is found that is substantially the same as the present material the properties of said material are inherent. Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977).

“When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.” In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990) (see MPEP § 2112.01). “[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art’s functioning, does not render the old composition patentably new to the discoverer.” Atlas Powder Co. v. Ireco Inc., 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). Thus the claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. In re Best, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977) (see MPEP § 2112.01). “[T]he PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his [or her] claimed product. Whether the rejection is based on

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inherency' under 35 U.S.C. 102, on prima facie obviousness' under 35 U.S.C. 103, jointly or alternatively, the burden of proof is the same." The burden of proof is similar to that required with respect to product-by-process claims. In re Fitzgerald, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980) (quoting In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977)) (see MPEP § 2112).

8. Regarding claim 3, Takei does not specifically teach the viscosity is 0.5Pas or more or 4.0 Pas or less, measured under any specified conditions. However, these properties are inherent considering the material used is substantially the same as the material disclosed in the instant application. See above rationale of claim 1.

9. Regarding claim 4, Takei does not explicitly teach the bulk density under pressure of 33MPa is 1850kg/m³ or the rate of variation of the bulk density when the pressure is released is 0.3 or less. However, these properties are inherent considering the material used is substantially the same as the material disclosed in the instant application. See above rationale of claim 1.

10. Regarding claim 6, Takei teaches a compound carbon particle which has the structure which a graphite grain is covered with amorphous carbon suitable as the negative pole material (see title and paragraphs [0011] and [0013]), which is the equivalent of applicants' non-aqueous electrolyte secondary battery negative electrode which includes the negative electrode material of claim 1.

11. Regarding claim 7, Takei teaches a lithium secondary battery having a negative pole material which is a compound carbon particle which has the structure in which a graphite grain is covered with amorphous carbon (see abstract and paragraphs [0011]

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and [0013]), which is the equivalent of applicants' non-aqueous electrolyte secondary battery having as the negative electrode, the non-aqueous electrolyte secondary battery negative electrode of claim 6.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRENT THOMAS whose telephone number is (571)270-7737. The examiner can normally be reached on Monday - Thursday, 9:00am-6:00pm (est.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, PATRICK RYAN can be reached on (571)272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/PATRICK RYAN/
Supervisory Patent Examiner, Art Unit 1795